

No. 884,007.

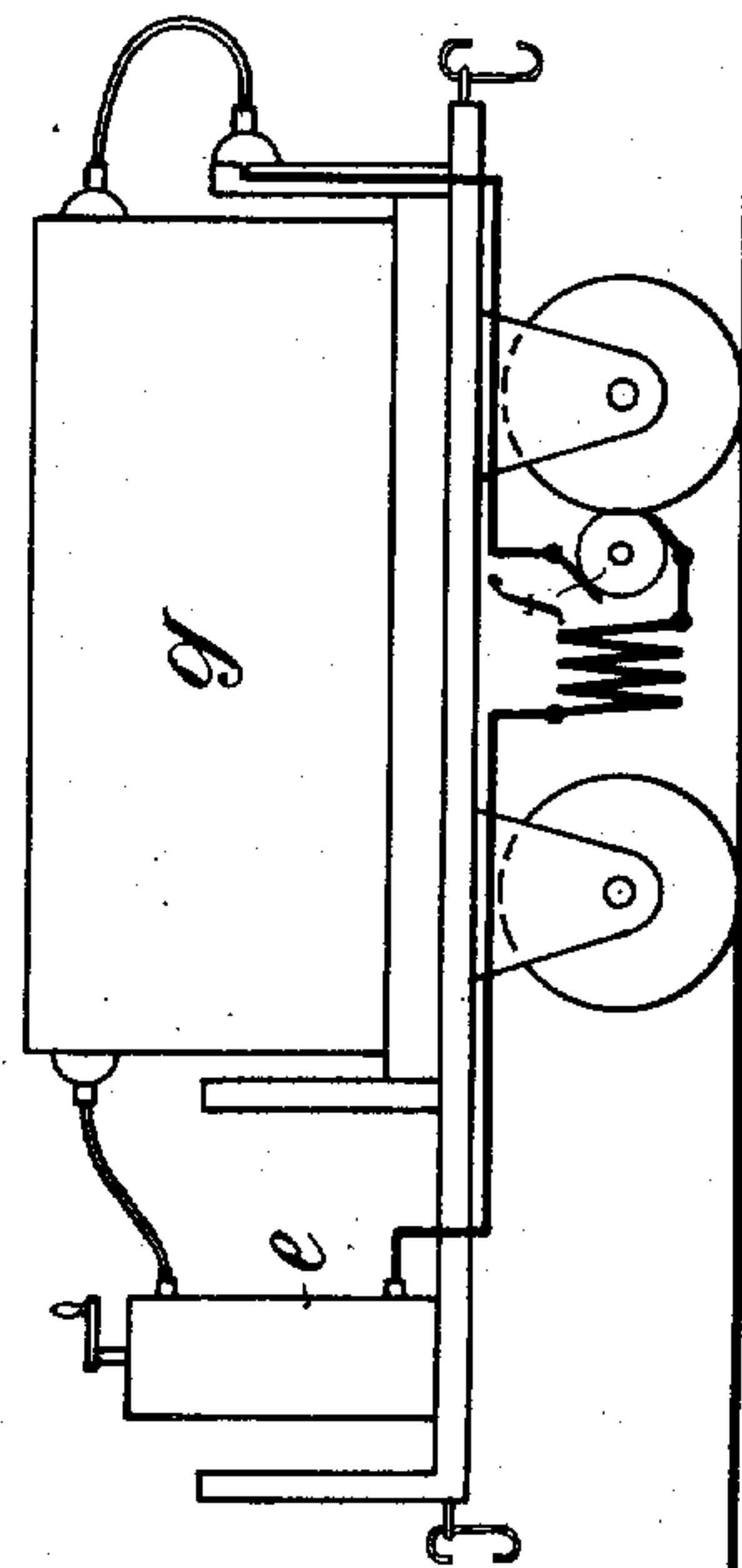
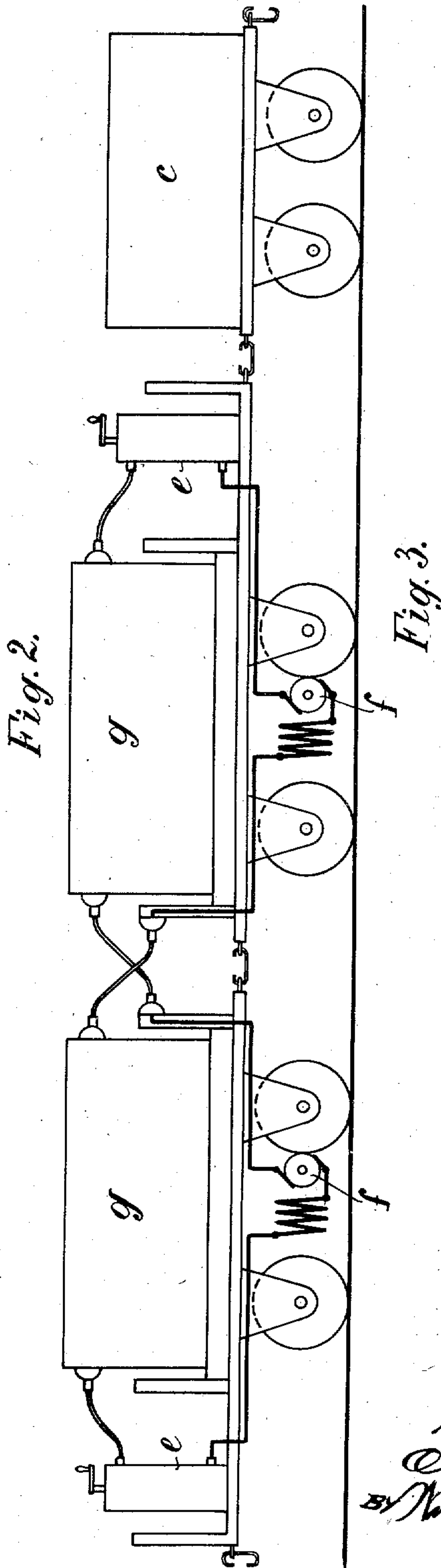
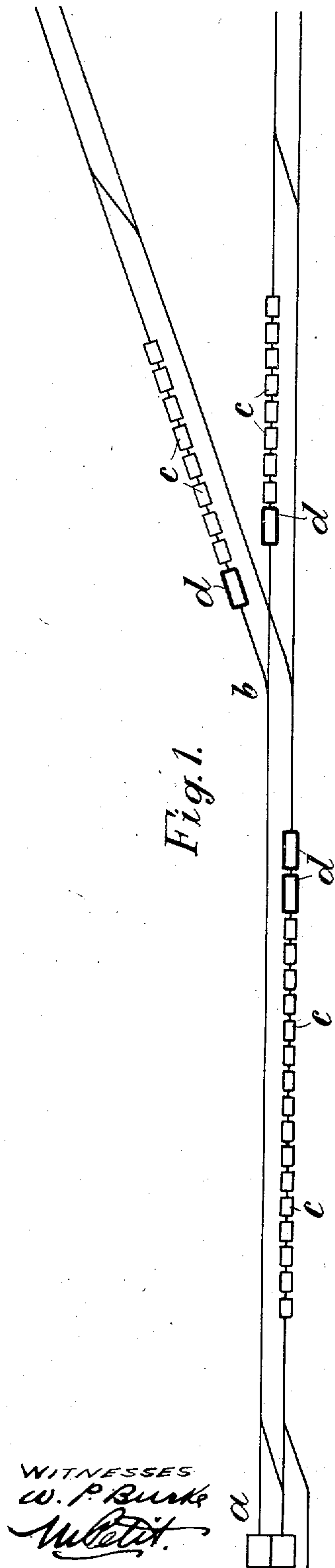
PATENTED APR. 7, 1908.

O. BÖHM.

TRAIN CONTROL FOR ELECTRIC ACCUMULATOR LOCOMOTIVES.

APPLICATION FILED AUG. 6, 1907.

2 SHEETS—SHEET 1.



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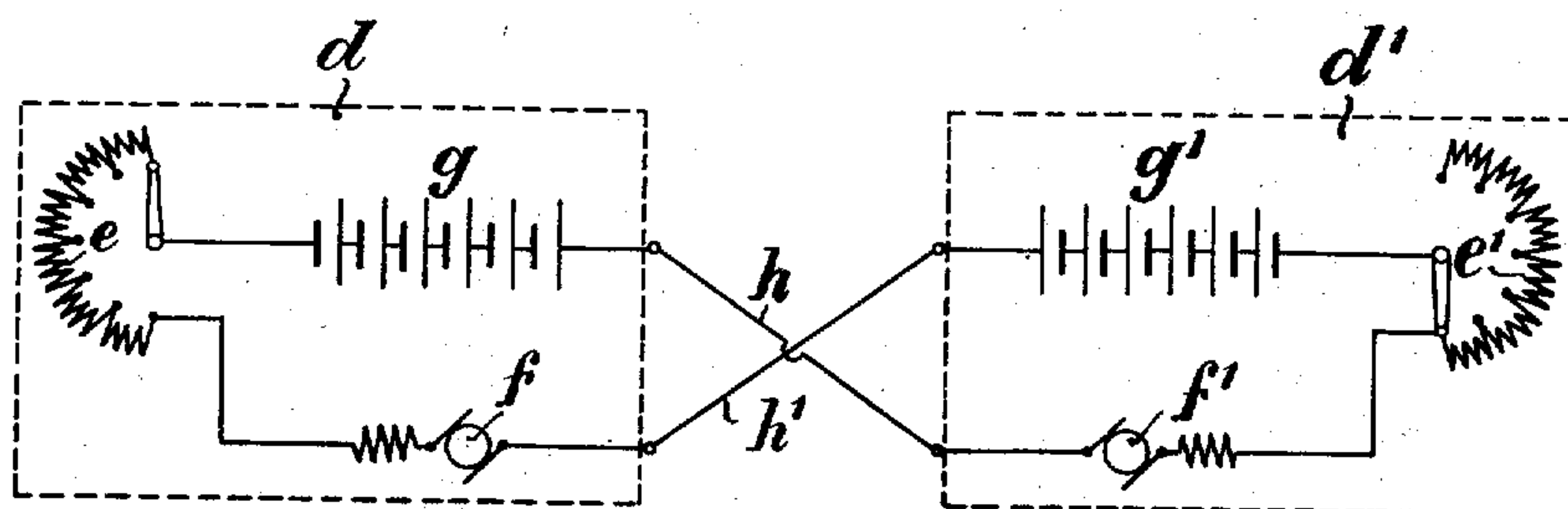
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2 SHEETS—SHEET 2.

*Fig. 4.*



WITNESSES

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# UNITED STATES PATENT OFFICE.

OTTO BÖHM, OF BERLIN, GERMANY.

## TRAIN CONTROL FOR ELECTRIC ACCUMULATOR-LOCOMOTIVES.

No. 884,007.

Specification of Letters Patent.

Patented April 7, 1908.

Application filed August 6, 1907. Serial No. 387,358.

*To all whom it may concern:*

Be it known that I, OTTO BÖHM, engineer, a subject of Germany, residing at Berlin, Germany, have invented new and useful Improvements in Train Control for Electric Accumulator-Locomotives, of which the following is a specification.

It is already known to construct electric locomotives having current supplied from an outside source and which are to be used either separately or coupled two or more together in such a manner that when so coupled the control of all the locomotives can be effected from a single controller.

The present invention relates to a control mechanism for accumulator locomotives, by means of which the control of any number of locomotives coupled together can be effected from a single controller in the simplest possible manner. In this arrangement each electric mechanism comprising a motor and a battery are inserted in series and the controllers of the locomotives which have no drivers are all set to full speed.

Figure 1 of the accompanying drawing illustrates diagrammatically a railway in a mine which is operated according to this system. Fig. 2 is an elevation of a train showing my invention applied thereto, Fig. 3 is a like view of a single car, and Fig. 4 is a diagram of the electric connection of two locomotives coupled together.

Upon the main track which proceeds from the filling place (shaft) *a* to the crossing *b*, the trains composed of a relatively large number of trucks *c* are drawn by two or more coupled locomotives *d*. Upon the side tracks proceeding from the crossing *b* a single locomotive *d* suffices for moving the trains which consist in these cases of only a few trucks. If, for instance, the two trains which are both upon the side tracks are to be drawn from the crossing *b* together to the filling place *a*, then the two locomotives *d* are coupled and the trucks *c* of both trains are attached. By means of the hereinafter described arrangement of the locomotives it then becomes possible to operate both locomotives from a single controller, consequently only a single driver is needed upon

the main line from the crossing *b* to the filling place *a* to control the train.

The electric coupling of the locomotives can for instance take place in the manner illustrated in Fig. 2 together with the mechanical coupling. The electric systems of the two locomotives are coupled, consisting each of a controller *e*, a motor *f*, and a battery *g*; these are so connected that all these elements are inserted in series and the controller *e* of the locomotive without a driver is permanently fixed to full speed. It then becomes possible to control both motors by only operating the controller of the leading locomotive.

When a locomotive is to be used separately, the battery *g* is connected with the motor *f* in the manner shown in Fig. 3.

The control of all the motors is preferably effected by altering the control resistance only in the leading locomotive, so that the electric coupling between the two locomotives needs only to be two-fold.

Fig. 4 is a diagram of the electric connection of the two locomotives *d, d'* coupled together according to my invention. Each locomotive has a control resistance *e, e'*, a motor *f, f'*, and a battery *g, g'*, which are all connected in series by means of suitable coupling, as for instance by the flexible cables *h, h'*. *d* is the leading locomotive and its control resistance *e* is operated by a driver, while on the locomotive *d'* there is no driver and its control resistance *e'* is permanently cut out.

I claim:

1. In a train control for electric accumulator locomotives a plurality of locomotives, each having a controller, a battery and a motor, electric couplings between said locomotives, all the controllers, motors and batteries being connected in series, the arrangement being such that the motors are controlled by only one controller, while all other controllers are permanently fixed to full speed, substantially as described.

2. In a train control for electric accumulator locomotives a plurality of locomotives, each having a controller, a controller resistance, a battery and a motor, two fold electric

couplings between said locomotives, all the controllers, motors and batteries being connected in series, the arrangement being such, that the motors are controlled by only one  
5 controller, while all other controllers are permanently fixed to full speed, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

OTTO BÖHM.

Witnesses:

WOLDEMAR HAUPT,  
HENRY HASPER.